10-28-2010

UNH Awarded $700K for Dairy Farm GHG Emissions Study

David Sims
Institute for the Study of Earth, Oceans, and Space

Media Relations

UNH Awarded $700K For Dairy Farm GHG Emissions Study

October 28, 2010

DURHAM, N.H. – Scientists from the University of New Hampshire have been awarded $700,000 from the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) to do a baseline study of greenhouse gas emissions at both traditional and organic dairy farms operated by UNH. The grant will also support development of extension and higher education programs that will improve the competitiveness of organic livestock and crop producers, as well as those who are adopting organic practices.

The three-year study by scientists at UNH's Institute for the Study of Earth, Oceans, and Space (EOS) and Applied Geosolutions, LLC of Durham will include field measurements of greenhouse gas emissions, including methane, carbon dioxide, and nitrous oxide, from all components of both traditional and organic dairy farming.

Says the project's principal investigator, research associate professor Ruth Varner of the EOS Complex Systems Research Center, "In farming, the nitrogen cycle is what people are really interested in. Nitrogen fertilizer is typically used to grow crops and there is a lot of nitrogen in byproducts, which can produce nitrous oxide, one of the greenhouse gases we are measuring."

If, for example, nitrogen-rich manure is used to fertilize fields it may have an impact on gaseous nitrogen and carbon emissions to the atmosphere. The USDA-funded project aims to put detailed numbers on these emissions via field measurements using, among other methods, autochamber technology to measure gaseous emissions around the clock.

Conversion from conventional to organic dairy farming in the Northeast will result in enhanced ecosystem services and improved environmental benefits through the reduction in nitrate leaching and greenhouse gas emissions and increases in soil organic matter.

"The market for organic products is rapidly growing through the United States and many producers are adopting organic practices to meet this demand," says Roger Beachy, NIFA director. "Our goal through projects is to explore factors affecting organic practices to guide producers as they adopt these methods."

As part of the project, a computer-based program will be tested as a decision-support tool for farmers to evaluate best management practices at their farms. The tool will be tested in collaboration with partners in the study, Organic Valley of LaFarge, Wis., and Stonyfield Farms of Londonderry. The project will provide farmers with training in using the tool and assistance with accessing relevant data regarding both the productivity of, and ecosystems services provided by, their farms. Farmers will also have access to comparative data and general information about the differences between organic and conventional farm practices.

The project will also lead the way in redefining the relationship between scientific research and the community that it serves by, in addition to working directly with farms, bringing aspects of the research into public school classes.

Adds Varner, "We will engage not only with stakeholders in the dairy industry but will also work with Erik Froburg, educational and outreach specialist with UNH's Joan and James Leitzel Center for Mathematics, Science and Engineering education, to engage the K-12 community in an effort to educate both the users and the public about greenhouse gas emission inventories, organic farming, and sustainable agriculture."

Co-investigators for the project include Changsheng Li of CSRC and William Salas of Applied Geosolutions.

NIFA awarded more than $4 million through its Organic Transitions Program. In 2010, this program focused on environmental services provided by organic farming systems that support soil conservation and contribute to climate change mitigation. Practices and systems addressed include those associated with

organic crops, organic animal production (including dairy) and organic systems integrating plant and animal production. More information on the program can be found online at www.nifa.usda.gov/fo/organictransitionsprogram.cfm.

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,200 graduate students.

-30-

Media Contact: David Sims | 603-862-5369 | Science Writer
Institute for the Study of Earth, Oceans, and Space